

IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF TEXAS

Subi Arumugam,

*Plaintiff,*

v.

William Marsh Rice University,

a Texas corporation,

and

Amazon.com Inc.,

a Washington corporation,

and

Christopher M. Jermaine,

individually,

and

Joe A. Warren,

individually,

and

Mary A. Cronin,

individually.

*Defendants*

United States District Court  
Southern District of Texas  
**FILED**

MAR 4 2013

David J. Bradley, Clerk of Court

Civil Action No. 4:13-cv-00376

**AMENDED COMPLAINT FOR  
COPYRIGHT INFRINGEMENT AND  
CONTRIBUTORY INFRINGEMENT**

Plaintiff Subi Arumugam (“Plaintiff”) for his complaint against Defendants William Marsh Rice University, Amazon.com Inc., Christopher M. Jermaine, Joe. A. Warren, and Mary A. Cronin (collectively “Defendants”) alleges as set forth below.

### **NATURE OF THE CLAIM, JURISDICTION AND VENUE**

1. This is an action for copyright infringement under the United States Copyright Act, 17 U.S.C. §§ 101 etc. This Court has jurisdiction under 17 U.S.C §101 et seq., 28 U.S.C §1331 (federal question), and 28 U.S.C § 1338(a) (copyright).
2. Venue in this District is proper under 28 U.S.C § 1391(b) and/or 28 U.S.C § 1400(a). Based to the best knowledge and information of the Plaintiff, the Defendants may be found in this District and/or a substantial part of the alleged events occurred and/or have a significant effect within this District.
3. On information and belief, personal jurisdiction in this District is proper because each Defendants, without consent or permission of Plaintiff as the exclusive rights owner, intentionally and willfully infringed and made available over the Internet, copyrighted works for which the Plaintiff has exclusive rights.
4. To ensure that venue and jurisdiction are proper, Plaintiff, through its agents and representatives, has undertaken efforts to only identify alleged infringers who are within or near the geographic location of the Court.

### **BACKGROUND**

5. Plaintiff was a postdoctoral research associate employed by the Defendant William Marsh Rice University since January of 2011. Plaintiff’s employment with the Defendants ended on December 15, 2012.
6. As a computer systems enthusiast and freelance programmer, the Plaintiff owns and manages several websites on the Internet (such as [www.cloverdb.net](http://www.cloverdb.net), [rainbowdb.com](http://rainbowdb.com), [www.ec2hub.com](http://www.ec2hub.com),

www.cloverdb.com, www.pensieve.cc, www.datagen.org, etc.). Plaintiff has also developed a portfolio of software programs using his own resources and time some of which he has made available to fellow researchers/computer enthusiasts under free software licenses in the spirit of giving back to the community.

7. The subject matter of the motion concerns Clover Cluster Management Software, which is a software product of interest to Cloud Computing users. Clover is a Software Program for monitoring and managing a set of computer nodes within a network. Clover centralizes several administrative functions into a single logical interface and allows the flexible addition/deletion of computer nodes into the network thereby simplifying the task of systems administration and management of large-scale computer networks.
8. Traditionally the world of computing can be subdivided into the personal computing market and the enterprise business market. While personal-computers (PCs) have been the face of the computing world to the general public, thanks to popular products from vendors such as Apple and Microsoft, much of the real equity is derived from software products and equipment that target the enterprise computing market. Enterprise markets have historically been dominated by large powerful monolithic mainframe computers from blue-chip companies such as IBM and HP who supply high-powered rack-machines and associated software as a package in varying configurations to businesses both small and large. In the last few years, this dichotomy between enterprise and personal computing has started to blur, thanks to Cloud Computing. Cloud Computing, in simple terms, makes the personal computer as the backbone of enterprise business activities. In order to realize this vision, there has been a trend to move away from large powerful centralized mainframe computers to off-the-shelf commodity personal computers. Thus, work that used to be performed by a single powerful supercomputer is branched out to a farm of inexpensive off-the-shelf personal computers. Cloud Computing has

become a disruptive force and there has been several initiatives, both national and international, towards formalizing this emerging area and building consensus among researchers in arriving at interoperability standards. Market research firms such as Gartner estimate the Cloud Computing market to be worth in the billions in the next few years. There has been intense interest from venture capitalists as well to capitalize on the potential of this emerging field.

9. A primary problem with Cloud Computing is that when work is distributed to a farm of computers, it makes the process of systems administration and management lot more tedious and time-consuming. Thus, software solutions aimed at simplifying management of a cluster of computers have attracted a lot of attention from the research community. Several silicon-valley startups have sprung up, backed by strong venture capitalist funding, that aims to offer solutions to large-scale cluster management and monitoring (such as 10gen, Datameer, Platfora, ClearStoryData, Scaligent, Qubole, Instart etc.)
10. Plaintiff is an eminently qualified individual in the field of Database Systems, particularly specializing in optimizing search queries over massive databases. Plaintiff earned a Doctoral Degree in Computer Engineering specializing in the field of Computer Database Systems in 2008. Since then, as a software engineer and later as a postdoctoral student, Plaintiff has refined his skills in the field to the extent that he is now one of the select few individuals who has risen to the top of their chosen specialty. Plaintiff routinely reviews articles submitted for publication in top journals in the field of Database Systems and participates as a Member of the Program Committee at premier Database Conferences. Besides his professional background as a Database Systems expert, Plaintiff is also an avid computer enthusiast and programmer who actively develops and maintains a portfolio of software products for fun. Over the span of 20 years, since High School when Plaintiff was first introduced to the world of Computers, he has written and has contributed to the broader programming community software programs in

domains as diverse as gaming, graphics, puzzles, expert systems, artificial intelligence etc. As a technophile, plaintiff has owned several laptops, computers and workstations running practically every possible operating system that has ever been written including some now defunct ones. Just as a car enthusiast would spend endless hours tinkering with his favorite toy car, Plaintiff actively dabbles with computer software internals and spends many hours tinkering with open-source software just so that it performs some trivial operation to his satisfaction.

### **GENERAL ALLEGATIONS**

11. Beginning in 2011, the Plaintiff started working on a software toolkit for managing the administrative tasks associated with a computer workstation as a hobby project. Over time, the Plaintiff refined the idea and added capabilities to manage multiple computer workstates connected within a single network. Plaintiff gave the moniker Clover to this evolving toolkit. The Clover software product evolved slowly over a period of two years starting in 2011. Despite not being a substantial piece of software (Clover is less than 20,000 lines of computer code while most of the research-related code written by the Plaintiff runs into hundreds of thousands of lines of code). Another reason for the slow-development of Clover is that it required researching and understanding completely new domain areas in Computer Science such as Distributed Networking and Computer Security, which were outside the scope of the Plaintiff's normal interests. Plus, the Plaintiff also had to fulfill his research duties as a full-time postdoctoral student at Rice University, which supported his living and boarding expenses.
12. In the middle of 2012, Plaintiff was tasked with carrying out a experimental simulation study on a network of computers in preparation for submission of an article in an upcoming Database Systems Conference. Plaintiff realized the task would be simplified if he used Clover to administer the Computer Network. The computers in the network were not physically owned by

Rice University but instead were rented on an hourly basis from Amazon Web Services – a provisioner of Cloud Computing Services to the general public. Once provisioned, the end-user can customize each rented computer during the bootup phase of the machine to suit his/her needs. The Plaintiff installed Clover as part of the bootup phase to ease his burden with carrying out the simulation (the Plaintiff had other research duties such as reviewing papers and supervising students etc.)

13. The Plaintiff designed the logistics of the actual simulation study which was carried out by varying the number of computer nodes from 5 nodes to 120 nodes. The individual computer nodes were provisioned from Amazon Web Services (AWS). On initial assignment, the provisioned nodes do not come loaded with any software. Using instrumentation code provided AWS, users can install their personal software to customize the allotted node.
14. The Plaintiff customized the setup phase to install a copy of Clover on each newly rented computer during the boot up phase since it greatly simplified the logistics related to systems administration and network configuration. For the purpose of distributing copies of Clover as well as to provide basic housekeeping functions, the Plaintiff created a special seed computer node, known as the metadaemon node (“metad”).
15. Essentially, to add a new computer to the network, a software request is made to the metadaemon, which then provisions a node from Amazon Web Services and then configures it with the required software from a central repository. When a node is provisioned, Amazon Web Services provides each node with a unique network identifier for internetwork communication, commonly known as the Internet Protocol (IP) address. During the configuration step, the metadaemon node maps the IP address of the node to that of a logical nickname composed of the prefix “EC” followed by a unique integer and assigns the node to logical network group “skynet” (Example: ec222.skynet → IP: 10.35.41.180, ec257.skynet → IP:10.244.253.38 etc.).

This makes it convenient to troubleshoot issues from the end-users perspective as logical names are more intuitive as compared to the Internet Protocol addresses. Each node then internally configures itself with the assigned logical name and maps it to the physical Internet Protocol (IP) address provided by Amazon Web Services when the node was provisioned.

16. Plaintiff successfully completed the study and an article detailing the study has been accepted for publication at the preeminent database research conference ACM SIGMOD to be held in June 2013 in New York, USA.
17. While Plaintiff has duly vested the copyright for all the software code that he wrote as part of his regular job duties, he specifically did not assign copyright associated with Clover to the Defendants since it was Plaintiff's own personal work developed independently, without any input or guidance, and without any compensation on the Defendants's part. Plaintiff is the exclusive owner of the copyright in the Clover Cluster Management Software and has duly registered it with the United States Copyright office (Registration Number: TXU001837440).
18. Meanwhile, Plaintiff's employment with the Defendants ended in December 2012. Plaintiff is currently in the process of establishing a startup company with the intent to sell Clover Cluster Management Software as a packaged product to Enterprise Business Customers under a tiered-license model similar to that practiced by vendors such as Microsoft (perpetual vs. subscription based, student edition vs professional edition etc.) along with technical support contracts outsourced to suitable partners. Plaintiff is also exploring possible alliances with more established software companies in the Enterprise Business segment to exploit synergistic business opportunities in the untapped Cloud Computing market. Plaintiff has established a corporation, EC2 HUB LLC, for the said purpose (registered duly as a Delaware Corporation on January 7, 2013) and is in the process of incorporating the said company to carry out business operations in the State of Texas with headquarters in Houston, Texas. Plaintiff is actively

involved in refining the Clover software package and intends to bring it the commercial market beginning June of 2013. The proposed release version of Clover has the capability to manage computer networks at a massive scale (task coordination and monitoring on upto 10,000 computer nodes will be supported in the planned release).

19. With the ending of his employment at Rice University, Plaintiff requested the Defendants to turn over any copies and associated documentation related to Clover that might still be in the possession of Rice University or its agents (since he worked there, the Plaintiff is aware of the existence of copies of Clover in the Defendants's computer systems). Furthermore, Plaintiff invited the Defendants to negotiate a suitable Software License Agreement for continued or future use of Clover failing which he requested the Defendants to cease using the said software product. Till to date, Defendants has failed to comply with the request and to the contrary it has come to the notice of the Plaintiff that the Defendants has continued to use Clover in a manner completely illegal without authorization or permission from the Plaintiff. Furthermore, through use of Clover in such an unauthorized manner, Defendants are exposing protected operative trade secrets of the Clover Cluster Management software over public and private networks to the general public and has the effect of indirectly sabotaging possible business opportunities that the Plaintiff is actively pursuing.
20. Furthermore, by making available information about Clover before it could be duly released by the Plaintiff as a product, Defendants is causing confusion in the minds of the general public and denying the Plaintiff the business opportunity to control the message perceived by potential customers on the Clover suite of software products. Finally, fledgling startups such as the Plaintiff's rely primarily on their Intellectual property in the first year of their existence. Thus, secrecy and stealth mode of operations is of utmost importance to any technology startup if it has to have any reasonable chance of succeeding in the cut-throat world of Silicon-valley tech



companies. By exposing information related to Clover in a medium not controlled or authorized by the Plaintiff, the Defendants is enabling potential competitors to gain first-mover-advantage and more importantly denying the Plaintiff the opportunity to calibrate the message associated with the Clover suite of software in the minds of prospective customers.

### COUNT 1

#### **COPYRIGHT INFRINGEMENT UNDER 17 U.S.C §§ 101 ET SEQ.**

21. Plaintiff repeats and reincorporates herein the allegations set forth in paragraphs 11-21, above.
22. The Computer Software Program Clover is an original work of the Plaintiff that is copyrighted under United States law. Plaintiff is the exclusive owner of the copyright for Clover and has duly registered it with the United States Copyright office. A true and correct copy of the Certificate of Registration is attached hereto as **Exhibit 1** and incorporated herein by reference for all purposes. The Plaintiff is entitled to statutory remedies of the U.S. Copyright Act.
23. Plaintiff has either published or licensed for publication all copies of the Clover Computer Software Program in compliance with the copyright laws.
24. **Exhibit 2** identifies the list of IP addresses under the control of the Defendants where Clover Computer Software program has been installed, reproduced and distributed without the permission or consent of the Plaintiff. Each row in the listing of **Exhibit 2** identifies the individual computer node by its logical nickname, the physical IP address, the last-observed date and time ("Timestamp") of the infringement, the name of the Service Provider that provisioned the computer node, and the network software protocol employed by the node's Clover daemon agent.
25. Over the course of monitoring the infringement, the Plaintiff's agents observed a total of 208 computer nodes associated with the Defendants, each of which carried an identical version of the Clover Computer Software Program carrying the exact same software version signature

identification as that of the metadaemon node. This makes sense since all nodes are spawned by the same metadaemon node and as such they all will share the same software DNA as that of the metadaemon node.

26. Further, Plaintiff is informed and believes that the Defendants, without the permission or consent of the Plaintiff, has used, and continues to use the Internet as a distribution system to reproduce copies of the Clover software program. In doing so, the Defendants has violated, and continues to violate, Plaintiff's exclusive rights of reproduction and distribution protected under the Copyright Act of 1976 (17 U.S.C § 101 et seq.), including under 17 U.S.C. § 106(1) and (3).
27. Each of the Defendants's acts of infringement have been willful, intentional, and in disregard of and with indifference to the rights of Plaintiff. The method used to identify the Defendants is explained in **Exhibit 3**.
28. Plaintiff has suffered both monetary damages and irreparable harm as result of the Defendants's infringement of Plaintiff's copyrights in the Clover software program. In addition, discovery may disclose that the Defendants may have obtained profits as result of such infringement.
29. As a result of the Defendants's infringement of Plaintiff's exclusive rights under copyright, Plaintiff is entitled to monetary relief pursuant to 17 U.S.C § 504, which may include Plaintiff's damages caused by the Defendants and the Defendants's profits and/or statutory damages, and to Plaintiff's attorney fees and other reasonable costs pursuant to 17 U.S.C § 505.
30. The conduct of the Defendants is causing and, unless enjoined and restrained by this Court will continue to cause, Plaintiff great and irreparable injury that cannot fully be compensated or measured in money. Plaintiff has no adequate remedy at law. Pursuant to 17 U.S.C §§ 502 and 503, the Plaintiff is entitled to injunctive relief prohibiting the Defendants from further infringing Plaintiff's copyrights and ordering that the Defendants destroy all copies of the copyrighted software program made in violation of the Plaintiff's copyrights.

**COUNT 2**

**CONTRIBUTORY INFRINGEMENT UNDER 17 U.S.C §§ 101 ET SEQ.**

31. Plaintiff repeats and reincorporates herein the allegations set forth in paragraphs 11-30 above.
32. Plaintiff is, and at all relevant times has been, the owner of the copyrights and/or the owner of the exclusive rights under the copyright laws in the United States for the Software Program at issue.
33. Through use of internet protocol and the process described above, each Defendant induced or caused or materially contributed to the infringing conduct of the other Defendants.
34. Each Defendant knew or should have known that other Defendants were infringing upon Plaintiff's copyrighted work.
35. Each of the Defendants' contributory infringements were committed willfully within the meaning of 17 U.S.C § 504(c)(2).
36. As a result, Plaintiff has suffered damages that were proximately caused by each of the Defendants. Plaintiff has suffered both money damages and irreparable harm as a result of each Defendant's infringement of Plaintiff's copyrights in the Software Program Clover. In addition, discovery may disclose that one or more of the Defendants obtained profits as a result of such infringement.
37. The conduct of each Defendant has caused, is causing and, unless enjoined by this Court will continue to cause, Plaintiff great and irreparable injury that cannot fully be compensated or measured in money. Plaintiff has no adequate remedy at law. Pursuant to 17 U.S.C §§ 502 and 503, the Plaintiff is entitled to injunctive relief prohibiting each Defendant from further infringing Plaintiff's copyrights and ordering that each Defendant destroy all copies of the Software Program Clover made in violation of the Plaintiff's copyrights.

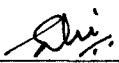
### **RELIEF REQUESTED**

WHEREFORE, Plaintiff requests that the Court enter judgement against the Defendants as follows:

1. For a judgement that the Defendants has infringed Plaintiff's copyright in the software program;
2. For entry of preliminary and permanent injunctions providing that the Defendants shall be enjoined from directly or indirectly infringing the Plaintiff's rights in the Software Program, including without limitation by using the Internet to reproduce or copy the Software Program, to distribute the Software Program, or to make the Software Program available for distribution to anyone, except pursuant to a lawful license or with the express authority of the Plaintiff;
3. For entry of preliminary and permanent injunctions providing that the Defendants shall destroy all copies of the Software Program that the Defendants has downloaded onto any computer hard drive or server without Plaintiff's authorization and shall destroy all copies of the Software Program transferred onto any physical medium or device in Defendants's possession, custody, or control;
4. For entry of judgement that the Defendants shall pay actual damages and profits, or statutory damages, pursuant to 17 U.S.C 504, at the election of Plaintiff;
5. For entry of judgement that such Defendants shall pay Plaintiff's costs;
6. For entry of judgement that such Defendants shall pay Plaintiff's reasonable attorney fees; and
7. For entry of judgement that Plaintiff have such other relief as justice may require and/or as otherwise deemed just and proper by this Court.

Respectfully submitted this 4<sup>th</sup> day of March 2013.

FOR THE PLAINTIFF:


By: 

Subi Arumugam PhD  
2429 Bissonnet Street #769  
Houston, TX 77005  
Phone: (650) 867-0952  
Email: [propus@gmail.com](mailto:propus@gmail.com)  
ATTORNEY Pro Se

**JURY DEMAND**

Plaintiff hereby demands trial by jury on all issues so triable.

FOR THE PLAINTIFF:

By: 

Subi Arumugam PhD  
2429 Bissonnet Street #769  
Houston, TX 77005  
Phone: (650) 867-0952  
Email: [propus@gmail.com](mailto:propus@gmail.com)  
ATTORNEY Pro Se

### **VERIFICATION**

I, Subi Arumugam, am the Attorney *Pro Se* who prepared this Complaint. I verify and declare under 28 USC § 1746 that I have read the foregoing Complaint and it is, based on my personal knowledge and information I have reviewed true. In particular, I have taken the following steps to ensure that the Complaint and its allegations comply with all requirements:

1. I personally checked that a copyright registration for the work at issue has been filed properly through the searchable database of the U.S. Copyright office at <http://copyright.gov/records/> to ensure that the work at issue is eligible for statutory remedies under Section 412 of the Copyright Law.
2. The infringing work is available for access by anyone with access to an Internet connection at the location <http://ec2-23-23-203-10.amazonaws.com/> hosted by Amazon Web Services. Hence I was able to personally verify that the software signatures associated with the computer nodes in the infringing website matches the description consistent with the operation of an active Clover daemon program.
3. Finally, I was able to trace the infringing website to an Internet Protocol (IP) address 23.23.203.10 with the help of a technology specialist at GeekSquad. The actual methodology employed is outlined in Exhibit C. The specified IP address is owned by Amazon Web Services (AWS) and is on permanent assignment to the Defendant's AWS account. I could attest to this fact since I had personally used the said IP address during my time as an employee with the Defendant.

Thus, I verify and declare under penalty of perjury that the foregoing statements and the statements in the Complaint are true and correct to the best of my knowledge.

Date: March 4, 2013

By: Subi Arumugam

Subi Arumugam PhD

On this day, **SUBRAMANIAN ARUMUGAM**, known to me to be the person whose signature appears on the foregoing verification, personally appeared. Affiant's identity was proved to me by **Texas Driver License**. After being by me duly sworn, he stated that he has read the foregoing Complaint for Copyright Infringement; and that the facts and circumstances contained in this complaint are true to the best of his knowledge and belief.

SWORN TO AND SUBSCRIBED BEFORE ME on this 4<sup>th</sup> day of MARCH 2013.

Sean Hinton

*Notary Public, State of Texas*





**EXHIBITS:**

1. Exhibit 1 – Copyright registration record of the Computer Software Program at issue
2. Exhibit 2 – Table of Last-observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover," Copyright Reg. No. TXU001837440
3. Exhibit 3 – Technology Declaration of Dr. Subi Arumugam Ph.D., explaining the methodology used to identify the alleged copyright infringers

Exhibit 1

## Certificate of Registration



This Certificate issued under the seal of the Copyright Office in accordance with title 17, *United States Code*, attests that registration has been made for the work identified below. The information on this certificate has been made a part of the Copyright Office records.

*Maria A. Pallante*

Register of Copyrights, United States of America

**Registration Number**  
**TXu 1-837-440**

**Effective date of  
registration:**

January 2, 2013

### Title

**Title of Work:** Clover Cluster Management Software

### Completion/Publication

**Year of Completion:** 2012

### Author

■ **Author:** Subramanian Arumugam

**Pseudonym:** Subi Arumugam

**Author Created:** text, computer program

**Citizen of:** India

**Domiciled in:** United States

### Copyright claimant

**Copyright Claimant:** Subramanian Arumugam

3000 Bissonnet St #3209, Houston, TX, 77005

### Rights and Permissions

**Name:** Subramanian Arumugam

**Email:** propus@gmail.com

**Telephone:** 650-867-0952

**Address:** 2429 Bissonnet #769

Houston, TX 77005 United States

### Certification

**Name:** Subramanian Arumugam

**Date:** December 30, 2012

**Applicant's Tracking Number:** 3012-001

Exhibit 2

## Exhibit 2

Table of Last-Observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover." Copyright Reg. No. TXU001837440

<b>Node</b>	<b>Name</b>	<b>IP Address</b>	<b>Timestamp (U.S. Central Time)</b>	<b>Service Provider</b>	<b>Protocol</b>
1	metad	23.23.203.10	2013-02-13 04:03:43 -0600	Amazon Web Services	Internet
2	ec2.skynet	10.98.245.170	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
3	ec203.skynet	10.100.174.205	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
4	ec204.skynet	10.76.75.195	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
5	ec205.skynet	10.79.23.147	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
6	ec206.skynet	10.79.97.56	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
7	ec207.skynet	10.112.23.2	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
8	ec208.skynet	10.76.109.83	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
9	ec209.skynet	10.78.131.25	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
10	ec210.skynet	10.78.241.55	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
11	ec211.skynet	10.100.127.69	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
12	ec212.skynet	10.98.26.235	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
13	ec213.skynet	10.38.193.31	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
14	ec214.skynet	10.100.74.24	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
15	ec215.skynet	10.98.150.122	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
16	ec216.skynet	10.115.105.99	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
17	ec217.skynet	10.84.174.130	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
18	ec218.skynet	10.244.109.174	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
19	ec219.skynet	10.117.122.203	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
20	ec220.skynet	10.98.209.91	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
21	ec221.skynet	10.34.243.21	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
22	ec222.skynet	10.35.41.180	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
23	ec223.skynet	10.84.175.83	2013-02-13 04:09:22 -0600	Amazon Web Services	Internet
24	ec224.skynet	10.194.178.79	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
25	ec225.skynet	10.84.171.254	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
26	ec226.skynet	10.78.181.197	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
27	ec227.skynet	10.84.117.247	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
28	ec228.skynet	10.98.207.86	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
29	ec229.skynet	10.112.201.157	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet

## Exhibit 2

Table of Last-Observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover." Copyright Reg. No. TXU001837440

30	ec230.skynet	10.34.243.224	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
31	ec231.skynet	10.38.187.86	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
32	ec232.skynet	10.115.50.120	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
33	ec233.skynet	10.100.151.130	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
34	ec234.skynet	10.38.198.102	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
35	ec235.skynet	10.99.74.151	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
36	ec236.skynet	10.84.181.184	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
37	ec237.skynet	10.117.129.111	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
38	ec238.skynet	10.100.147.181	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
39	[undefined]	10.78.46.55	2013-02-13 04:43:32 -0600	Amazon Web Services	Internet
40	ec240.skynet	10.78.249.89	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
41	ec241.skynet	10.205.38.247	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
42	ec242.skynet	10.100.135.81	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
43	ec243.skynet	10.100.119.172	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
44	ec244.skynet	10.226.218.135	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
45	ec245.skynet	10.84.135.237	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
46	ec246.skynet	10.115.111.169	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
47	ec247.skynet	10.33.54.217	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
48	ec248.skynet	10.205.33.38	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
49	ec249.skynet	10.100.115.156	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
50	ec250.skynet	10.84.178.150	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
51	ec251.skynet	10.35.1.145	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
52	ec252.skynet	10.100.171.70	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
53	ec253.skynet	10.76.103.42	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
54	ec254.skynet	10.98.147.237	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
55	ec255.skynet	10.98.234.200	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
56	ec256.skynet	10.39.71.196	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
57	ec257.skynet	10.244.253.38	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
58	ec258.skynet	10.226.217.171	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
59	ec259.skynet	10.79.98.185	2013-02-13 04:04:00 -0600	Amazon Web Services	Internet
60	ec260.skynet	10.76.157.245	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet

## Exhibit 2

Table of Last-Observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover." Copyright Reg. No. TXU001837440

61	ec261.skynet	10.78.134.132	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
62	ec262.skynet	10.33.86.216	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
63	ec263.skynet	10.36.249.45	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
64	[undefined]	10.84.151.65	2013-02-13 04:43:32 -0600	Amazon Web Services	Internet
65	ec265.skynet	10.98.43.20	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
66	ec266.skynet	10.98.205.102	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
67	ec267.skynet	10.84.149.244	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
68	ec268.skynet	10.100.157.214	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
69	ec269.skynet	10.76.69.64	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
70	ec270.skynet	10.84.78.180	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
71	ec271.skynet	10.98.247.172	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
72	ec272.skynet	10.38.221.27	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
73	ec273.skynet	10.98.25.210	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
74	ec274.skynet	10.38.247.137	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
75	ec275.skynet	10.244.254.31	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
76	ec276.skynet	10.84.163.237	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
77	ec277.skynet	10.224.239.44	2013-02-13 04:27:01 -0600	Amazon Web Services	Internet
78	ec278.skynet	10.98.138.59	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
79	ec279.skynet	10.79.25.58	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
80	ec280.skynet	10.100.87.23	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
81	ec281.skynet	10.115.35.231	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
82	ec282.skynet	10.115.107.182	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
83	ec283.skynet	10.76.95.104	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
84	ec284.skynet	10.79.81.234	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
85	ec285.skynet	10.100.122.184	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
86	ec286.skynet	10.39.17.188	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
87	ec287.skynet	10.37.43.186	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
88	ec288.skynet	10.100.70.13	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
89	ec289.skynet	10.33.41.148	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
90	ec290.skynet	10.100.142.39	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
91	ec291.skynet	10.98.210.137	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet



## Exhibit 2

Table of Last-Observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover." Copyright Reg. No. TXU001837440

92	ec292.skynet	10.100.187.133	2013-02-13 04:33:25 -0600	Amazon Web Services	Internet
93	ec293.skynet	10.204.183.153	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
94	ec294.skynet	10.243.106.52	2013-02-13 04:18:01 -0600	Amazon Web Services	Internet
95	ec295.skynet	10.98.235.239	2013-02-13 04:04:00 -0600	Amazon Web Services	Internet
96	ec296.skynet	10.33.95.52	2013-02-13 04:22:53 -0600	Amazon Web Services	Internet
97	ec297.skynet	10.98.249.248	2013-02-13 04:12:59 -0600	Amazon Web Services	Internet
98	ec298.skynet	10.98.43.232	2013-02-13 04:03:44 -0600	Amazon Web Services	Internet
99	ec299.skynet	10.119.123.59	2013-02-13 04:29:31 -0600	Amazon Web Services	Internet
100	[undefined]	10.84.151.101	2013-02-13 04:43:32 -0600	Amazon Web Services	Internet
101	[undefined]	10.35.14.159	2013-02-13 04:43:32 -0600	Amazon Web Services	Internet
102	[undefined]	10.115.121.196	2013-02-13 04:43:32 -0600	Amazon Web Services	Internet
103	[undefined]	10.78.181.203	2013-02-13 04:43:32 -0600	Amazon Web Services	Internet
104	ec303.skynet	10.79.98.158	2013-02-14 20:22:06 -0600	Amazon Web Services	Internet
105	ec304.skynet	10.99.82.147	2013-02-14 20:22:06 -0600	Amazon Web Services	Internet
106	ec305.skynet	10.78.153.27	2013-02-14 20:22:06 -0600	Amazon Web Services	Internet
107	ec306.skynet	10.84.154.121	2013-02-14 20:22:06 -0600	Amazon Web Services	Internet
108	ec307.skynet	10.78.55.65	2013-02-14 20:22:06 -0600	Amazon Web Services	Internet
109	ec308.skynet	10.37.62.159	2013-02-14 20:22:06 -0600	Amazon Web Services	Internet
110	ec309.skynet	10.33.13.171	2013-02-14 20:22:06 -0600	Amazon Web Services	Internet
111	ec310.skynet	10.84.141.213	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
112	ec311.skynet	10.79.98.185	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
113	ec312.skynet	10.78.69.142	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
114	ec313.skynet	10.196.98.111	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
115	ec314.skynet	10.39.2.105	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
116	ec315.skynet	10.78.121.237	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
117	ec316.skynet	10.35.14.24	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
118	ec317.skynet	10.98.209.173	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
119	ec318.skynet	10.242.175.143	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
120	ec319.skynet	10.78.121.216	2013-02-14 20:27:09 -0600	Amazon Web Services	Internet
121	ec320.skynet	10.202.231.235	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
122	ec321.skynet	10.84.139.8	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet



## Exhibit 2

Table of Last-Observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover." Copyright Reg. No. TXU001837440

123	ec322.skynet	10.39.18.70	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
124	ec323.skynet	10.33.99.167	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
125	ec324.skynet	10.115.50.120	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
126	ec325.skynet	10.39.61.175	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
127	ec326.skynet	10.38.217.160	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
128	ec327.skynet	10.98.202.250	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
129	ec328.skynet	10.37.37.3	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
130	ec329.skynet	10.195.129.235	2013-02-14 20:32:11 -0600	Amazon Web Services	Internet
131	ec330.skynet	10.119.121.163	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
132	ec331.skynet	10.76.66.232	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
133	ec332.skynet	10.78.165.9	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
134	ec333.skynet	10.34.209.204	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
135	ec334.skynet	10.76.90.236	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
136	ec335.skynet	10.33.47.46	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
137	ec336.skynet	10.38.189.185	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
138	ec337.skynet	10.79.1.243	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
139	ec338.skynet	10.194.199.15	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
140	ec339.skynet	10.202.229.48	2013-02-14 20:37:14 -0600	Amazon Web Services	Internet
141	ec340.skynet	10.78.157.229	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
142	ec341.skynet	10.119.115.66	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
143	ec342.skynet	10.33.51.231	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
144	ec343.skynet	10.38.195.245	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
145	ec344.skynet	10.100.118.59	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
146	ec345.skynet	10.38.214.217	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
147	ec346.skynet	10.39.82.28	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
148	ec347.skynet	10.98.202.94	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
149	ec348.skynet	10.76.153.75	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
150	ec349.skynet	10.112.201.157	2013-02-14 20:42:16 -0600	Amazon Web Services	Internet
151	ec350.skynet	10.76.34.15	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
152	ec351.skynet	10.115.46.116	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
153	ec352.skynet	10.100.127.194	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet

## Exhibit 2

Table of Last-Observed Infringements by Defendant of Plaintiffs Copyright in the Computer Program "Clover." Copyright Reg. No. TXU001837440

154	ec353.skynet	10.98.22.119	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
155	ec354.skynet	10.98.27.224	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
156	ec355.skynet	10.33.47.46	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
157	ec356.skynet	10.98.198.195	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
158	ec357.skynet	10.99.55.141	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
159	ec358.skynet	10.78.61.30	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
160	ec359.skynet	10.115.97.24	2013-02-14 20:47:19 -0600	Amazon Web Services	Internet
161	ec360.skynet	10.37.42.66	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
162	ec361.skynet	10.33.46.158	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
163	ec362.skynet	10.34.250.192	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
164	ec363.skynet	10.36.159.14	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
165	ec364.skynet	10.100.129.143	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
166	ec365.skynet	10.196.161.219	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
167	ec366.skynet	10.195.130.95	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
168	ec367.skynet	10.119.21.230	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
169	ec369.skynet	10.98.35.166	2013-02-14 20:52:22 -0600	Amazon Web Services	Internet
170	ec370.skynet	10.79.42.58	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
171	ec371.skynet	10.98.245.238	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
172	ec372.skynet	10.38.193.59	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
173	ec373.skynet	10.115.59.134	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
174	ec374.skynet	10.242.99.95	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
175	ec375.skynet	10.115.57.199	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
176	ec376.skynet	10.35.10.207	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
177	ec377.skynet	10.100.147.234	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
178	ec378.skynet	10.98.201.230	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
179	ec379.skynet	10.100.169.56	2013-02-14 20:57:25 -0600	Amazon Web Services	Internet
180	ec380.skynet	10.195.7.127	2013-02-14 21:02:27 -0600	Amazon Web Services	Internet
181	ec381.skynet	10.98.213.123	2013-02-14 21:02:27 -0600	Amazon Web Services	Internet
182	ec382.skynet	10.99.69.109	2013-02-14 21:02:27 -0600	Amazon Web Services	Internet
183	ec383.skynet	10.100.83.60	2013-02-14 21:02:27 -0600	Amazon Web Services	Internet
184	ec384.skynet	10.33.41.148	2013-02-14 21:02:27 -0600	Amazon Web Services	Internet

## Exhibit 2

Table of Last-Observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover." Copyright Reg. No. TXU001837440

185	ec385.skynet	10.102.67.116	2013-02-14 21:02:27	-0600	Amazon Web Services	Internet
186	ec386.skynet	10.115.121.114	2013-02-14 21:02:27	-0600	Amazon Web Services	Internet
187	ec387.skynet	10.98.219.60	2013-02-14 21:02:27	-0600	Amazon Web Services	Internet
188	ec388.skynet	10.98.235.70	2013-02-14 21:02:27	-0600	Amazon Web Services	Internet
189	ec389.skynet	10.98.233.137	2013-02-14 21:02:27	-0600	Amazon Web Services	Internet
190	ec390.skynet	10.224.239.72	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
191	ec391.skynet	10.100.131.217	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
192	ec392.skynet	10.76.9.168	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
193	ec393.skynet	10.33.15.1	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
194	ec394.skynet	10.78.155.248	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
195	ec395.skynet	10.100.147.15	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
196	ec396.skynet	10.226.223.66	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
197	ec397.skynet	10.78.141.75	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
198	ec398.skynet	10.39.1.231	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
199	ec399.skynet	10.119.10.227	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
200	ec400.skynet	10.100.85.6	2013-02-14 21:07:30	-0600	Amazon Web Services	Internet
201	ec401.skynet	10.84.162.57	2013-02-14 21:11:26	-0600	Amazon Web Services	Internet
202	ec402.skynet	10.98.151.85	2013-02-14 21:11:26	-0600	Amazon Web Services	Internet
203	ec403.skynet	10.117.118.176	2013-02-14 21:11:26	-0600	Amazon Web Services	Internet
204	ec404.skynet	10.194.91.111	2013-02-14 21:11:26	-0600	Amazon Web Services	Internet
205	ec405.skynet	10.98.147.193	2013-02-14 21:11:26	-0600	Amazon Web Services	Internet
206	ec406.skynet	10.243.142.31	2013-02-14 21:11:26	-0600	Amazon Web Services	Internet

Exhibit 3

Exhibit 3

**METHODOLOGY USED TO IDENTIFY THE INFRINGEMENT**

1. While monitoring for individuals and computer bots seeking unauthorized access to the many websites owned and managed by the Plaintiff, the Plaintiff's agents came across the Internet website <http://ec2-23-23-203-10.amazonaws.com/ganglia> that was actively broadcasting monitoring and status reports sent by individual Clover daemons to a metadaemon node.
2. With the help of a technology specialist at GeekSquad (<http://www.geeksquad.com/>), the Plaintiff was able to trace the infringing website to an Internet Protocol (IP) address 23.23.203.10. Mapping a website address to the physical IP address is known as reverse DNS mapping, and as advised by the technical specialist at GeekSquad the Plaintiff was able to use standard software tools available on the Internet (<http://www.networksolutions.com/whois>) to perform the reverse IP lookup.
3. The plaintiff is familiar with the said IP address since it is on assignment to the Defendant's Amazon Web Services account since the beginning of 2012. An email communication between the Plaintiff and one of the research students at Rice University mentions this IP address specifically.
4. By accessing the publicly available status and log reports at the said IP address, the Plaintiff's agents were able to uncover all the computer nodes that are active members of the "skynet" network group. The Plaintiff's agents were able to uncover a total of 206 computer nodes with infringing copies of the Clover Software Program in addition to the metadaemon node.

**EXHIBITS:**

1. Exhibit A – Copyright registration record of the Computer Software Program at issue
2. Exhibit B – Table of Last-observed Infringements by Defendant of Plaintiff's Copyright in the Computer Program "Clover," Copyright Reg. No. TXU001837440
3. Exhibit C – Technology Declaration of Dr. Subi Arumugam Ph.D., explaining the methodology used to identify the alleged copyright infringers

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